



USAID
FROM THE AMERICAN PEOPLE

**SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY
COOPERATION AND DEVELOPMENT**

ROLE OF STATES IN IMPLEMENTING INDIA'S ELECTRICITY ACT 2003

September 2005

This document was prepared for review by the United States Agency for International Development. It was prepared by Nexant, Inc. under Contract No. 386-C-00-03-00135-00

SOUTH ASIA REGIONAL INITIATIVE FOR
ENERGY COOPERATION AND DEVELOPMENT

ROLE OF STATES IN IMPLEMENTING
INDIA'S ELECTRICITY ACT 2003

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Acronyms

ADB	Asian Development Bank
APDRP	Accelerated Power Development and Reform Program
CEA	Central Electricity Authority
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CRISIL	Credit Rating Information Services of India Limited
CTU	Central Transmission Utility
EA 2003	Electricity Act, 2003
ERC Act 1998	Electricity Regulatory Act
IPP	Independent private power company
MOP	Ministry of Power
MOU	Memoranda of Understanding
NEP	National Electricity Policy and Tariff Plan
NGO	Non-governmental organization
PFC	Power Finance Corporation
RLDC	Regional Load Dispatch Centre
SARI/Energy	South Asia Regional Initiative on Energy
SEB	State Electricity Board
SERC	State Electricity Regulatory Commission
SLDC	State Load Dispatch Center
STU	State Transmission Utility
STU	State Transmission Utility
UPA	The United Progressive Alliance
USAID	United States Agency for International Development

Contents

Section	Page
Executive Summary	ES-1
Providing for the Role of States in the Electricity Act, 2003	ES-1
Section 1 Background.....	1-1
Section 2 The Role of States under the Electricity Act, 2003.....	2-1
2.1 State Input in the National Electricity Policy and Tariff Plan	2-1
2.2 State Support of Power Generation Companies.....	2-2
2.3 State Input into Licensing of Electricity Trading	2-3
2.4 The Role of States in Electricity Transmission.....	2-3
2.5 State Input into Licensing of Electricity Distribution.....	2-4
2.6 Control and Use of Transmission of Electricity	2-4
2.7 State Tariff Regulation.....	2-4
2.8 State Licensing of Works.....	2-5
2.9 CEA and States	2-5
2.10 State Electricity Regulatory Commissions	2-5
2.11 State Role in Investigation and Enforcement.....	2-6
2.12 State Reorganization of State Electricity Boards.....	2-7
2.13 State Imposition of Penalties for Offenses.....	2-7
2.14 Special Courts Created by States	2-7
2.15 Dispute Resolution by States	2-7
Section 3 Constraints on State Implementation of EA 2003.....	3-1
Section 4 Conclusion.....	4-1
Appendix A Status of Reforms and Restructuring of States	A-1
Appendix B National Electricity Policy	B-1

Tables

1-1	Ranking of State Power Sectors.....	1-5
2-1	Chronology of Establishing Selected SERCs	2-6

Executive Summary

PROVIDING FOR THE ROLE OF STATES IN THE ELECTRICITY ACT, 2003

Prior to India's statutory reform of its power sector through the enactment of the Electricity Act, 2003 (EA 2003) in June 2003, India experienced a decade of false starts and upheavals attributed to its inability to meet ambitious goals for encouraging foreign and local investment by independent private power companies (IPPs). One explanation offered is that India's central government underestimated the role of state governments and State Electricity Boards (SEBs) in implementing power reforms and, instead, relied on issuing policy directives through the Ministry of Power (MoP). Hence, a major consequence of relying on national policy reforms was that many IPPs later proved to be ill-conceived, as their proposed schemes for non-recourse project financing relied upon SEBs that were uncreditworthy and unable to fulfill long-term payment obligations for power purchases. Moreover, this national focus was exacerbated by the Government of India's policy emphasis on meeting its power supply needs through new generation additions, rather than optimizing the existing power systems of SEBs by initiating demand side management and other energy efficiency improvements.¹

It was not until mid-2003, with the statutory overhaul of its power sector through EA 2003 that the role of states in support of implementing power reforms was reassessed and strengthened. The impetus for implementing reforms through the individual states under EA 2003 emanated from a consensus that tariff setting and public sector restructuring of SEBs needed to be de-politicized by shifting decision making away from politicians and bureaucrats to independent regulators at both the central and state levels. This shift is yet to be fully realized, however. By mid-2004, several states joined SEB trade unions and other vested interests to roll back their responsibilities under EA 2003. Over the past year, despite resistance from MoP to support major modifications to EA 2003, India's Prime Minister set a deadline of July 2005 for the Cabinet to approve amendments to EA 2003 involving removal of the provision for eliminating cross-subsidies [Sec. 42 (2)], reiterating the Government of India's role in rural electrification to ensure the power needs of rural India are met, and to extend the time period for reorganizing SEBs [Sec. 172 (a)].²

In light of impending amendments to EA 2003, this report outlines the changing role of state governments in implementing EA 2003 and provides a summary of the status of power reforms that have been implemented by states to date.

¹ Attention to generation was understandable given the need to increase installed capacity as part of reducing load shedding and meeting new supply demand and the existence of an international independent power producer (IPP) industry. The naiveté involved the limited ability and interest of the central and state governments to provide sovereign guarantees and counter-guarantees, beyond the so-called "fast-track-projects". Similarly, transmission and distribution is a traditional monopoly given to government-owned utilities. Private sector, non-recourse financing and ownership was virtually unheard of until recently and, even now, the number of Indian and international companies that are in the business of developing transmission and distribution is scarce, particularly given the enormous needs of developing an integrated national grid and privatizing distribution zones in every State. There remains considerable debate on whether SEB reforms should be "re-structuring oriented" or "efficiency-driven". See "Power Sector Reforms: Generating a Viable Model", MG Devasahayam, www.energylineindia.com (February 15, 2005).

² "PMO Wants Cabinet Nod for New Electricity Act by July 15", The Economic Times Online, July 15, 2005.

In the five-year period prior to enactment of the Electricity Act 2003 (EA 2003), with support of the World Bank, the Asian Development Bank (ADB) and the U.S. Agency for International Development (USAID), the Government of India initiated power sector reforms, some of which were directed at the governments of the 29 states and 6 union territories³. A key reform was the mandate to unbundle the generation, transmission, and distribution functions of the State Electricity Boards (SEBs). Unbundling of SEBs remains a primary means for promoting greater market competition, which is the primary objective of EA 2003.⁴

The Electricity Regulatory Commission Act of 1998 (ERC Act 1998) was another supportive reform, which preceded EA 2003 and served as the basis for establishing independent regulatory oversight by the Government of India and the state governments by establishing the Central Electricity Regulatory Commission (CERC)⁵ and the State Electricity Regulatory Commissions (SERCs)⁶.

Otherwise, state power reforms were initiated by the Government of India during years 2000-01 when the Ministry of Power (MoP) executed Memoranda of Understanding (MOUs) with some 14 states to reorganize the SEBs⁷, supported by undertaking an annual performance rating for ranking the effectiveness of SEBs.⁸ These initiatives were subsequently supported by recommendations of the Expert Committee on State Specific Reforms (known as the “Deepak S. Parekh Committee”).⁹ This committee outlined a range of state reforms in its report, “Structuring of APDRP, Reform Framework and Principles of Financial Restructuring of SEBs”¹⁰ to more effectively utilize APDRP funds for implementing distribution reforms.

³ India consists of 29 States: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttaranchal and West Bengal. India also has six Union Territories: Andaman & Nicobar, Chandigarh, Dadra and Naga Haveli, Daman and Diu, Lakshadweep and Pondicherry.

⁴ Dismantling of monolithic SEBs is considered essential for eliminating cross-subsidies and creating market competition and yet, unbundling SEBs by itself doesn't guarantee these results. Unbundling must be implemented while accepting that many profitable customers of SEBs will migrate through reforms promoting captive generation, open access, distribution licensing and power trading. See “Electricity Act, 2003 – Role of State Governments”, Jayant Kawale, secretary (Energy), Govt. of Maharashtra, FICCI Conference (July 23, 2003).

⁵ CERC is a statutory body under the CERC Act 1998 (since repealed inter alia under EA 2003). CERC's main functions are to regulate the tariff of generating companies owned or controlled by the Centre, to regulate the tariff of other (private) generating companies, that has a composite scheme for inter-state power generation and sales, to regulate the interstate transmission of energy (including transmission tariffs), to license interstate transmission and power trading and to advise the Central government in formulating the National Electricity Policy and Tariff Policy.

⁶ Similarly, EA 2003 further imposes the requirement of states to form SERCs for determining tariffs and granting licenses at the intrastate level regarding generation, supply, transmission, distribution and trading as well as promoting cogeneration and renewable energy.

⁷ MoP has executed MOUs and, subsequently, Memoranda of Agreements with the State governments of Andhra Pradesh (6-3-2001), Assam (March 26, 2001), Gujarat (January 19, 2001), Haryana February 13, 2001), Himachal Pradesh (March 31, 2001), Jharkhand (April 30, 2001), Karnataka (February 12, 2000), Madhya Pradesh (May 16, 2000), Maharashtra (March 16, 2001), Rajasthan March 23, 2001), Uttaranchal (March 30, 2001), Uttar Pradesh (February 25, 2000), Punjab (March 30, 2001), and West Bengal.

⁸ See “Report on Rating of State Power Sectors”, prepared by CRISIL/ICRA (January 8, 2003), as mandated by the Power Finance Corporation by MoP. The scoring system considers weighted factors related to 26 SEBs (generation - 6%, T&D - 19%, financial risk - 30%, and Information/MIS - 5%) and external factors totaling 40% of the total score that are related to the State Government and the SERC. Total scores ranged from 71.5 (Andhra Pradesh) to 11.0 (Arunachal Pradesh). The report issued in January 2004 is discussed in this Section.

⁹ The Deepak Parekh Committee was preceded by previous reform committees, including the Shri Coelho Committee (March 1998), the Shri Montek Singh Ahluwalia Committee (May 2001) and the Shri Ashok Basu Committee (March 2002).

¹⁰ These State reforms have been adopted or revised by subsequent policies of MoP and EA 2003, but provides important background information. The report is downloadable on MoP's website (<http://powermin.nic.in>).

As summarized in a companion report prepared under the South Asia Regional Energy Initiative on Energy (SARI/Energy)¹¹, a state government is accorded a wide range of statutory roles under EA 2003. The state exercises appointing and designating powers, provides funds, and makes rules and notifications. It appoints the members and administration of SERCs.¹² It establishes the State Load Dispatch Center (SLDC), notifies the State Transmission Utility (STU), and draws up reorganization of its SEB through acquiring its assets and re-vests it through a transfer scheme.¹³ The state government can also transfer employees through a transfer scheme, and it is empowered to constitute special courts and state coordination forums. In addition, each state government creates a SERC fund, provides loans or grants for running the SERC, and decides how the SERC should utilize the fund. The state government also notifies rural areas where exemption of license conditions would apply, resolves disputes over public places, and issues directions to the commission on public interest issues. It can even decide not to apply the provisions of EA 2003 for a certain period.

Because of past experience, the EA 2003 was carefully drafted to provide clarity in defining certain roles of state governments and remove difficulties faced in earlier acts. For example, under earlier acts, funding of SERCs was a serious issue. Certain SERCs saw their activities severely affected due to inadequate funding either due to poor financial health of the state government or due to political vindictiveness of the government. All fees collected by the commissions went to the government and payments from the government were often less than the fees received. Creation of a SERC fund¹⁴ where all the contributions of the government and all other income are collected and from where all expenses are made is essential for ensuring an independent role for SERCs.

A related innovation of EA 2003 is the requirement of advance payment of subsidy compensation by the state governments willing to provide some subsidy to any class of consumers.¹⁵ The earlier electricity acts required a promise of compensation from the state government, which proved to be inadequate, as many state governments did not keep their promises. An important provision of EA 2003 is directed at discouraging state governments from providing large subsidies.

The EA 2003 also addresses a problem with the previous electricity laws involving interpretation of policy directives. State governments have the power to issue policy directives to the SERCs or the Central Electricity Authority (CEA), and at times there were differences in opinion as to whether certain directives constituted policy directives. The Act now makes it clearer whether the Government of India or the state governments would have the authority to decide certain issues, as long as such directives are consistent with the intent of EA 2003.

Since its enactment almost two years ago, progress has been made to implement the mandate and deadlines established by EA 2003, especially on the part of CERC. Under EA 2003 the functions of CERC and SERCs have been categorized as three distinct roles:

¹¹ "India's Electricity Act, 2003 – Implications for Regional Electricity Trade", Vol. I, prepared by Nexant Inc. under the USAID SARI/Energy Program (October 2004, including a reprinted article by Dr. Subhes C. Bhattacharyya of the Centre for Energy, Petroleum and Mineral Law and Policy (CEPMLP), Dundee University, Scotland, UK (November 2003)

¹² Sections 82(5), 89, and 90.

¹³ See Sections 31 for SLDC, 39(1) for STU, and 131 for transfer scheme related to reorganization of the SEB.

¹⁴ See Sections 99 and 103 of EA 2003.

¹⁵ Section 65 of EA 2003.

- *Core Role* – Issuing orders regarding tariff regulation, monitoring quality of service, adjudicating disputes, enforcing license conditions, monitoring compliance, and redressing grievances;
- *Recommendation Role* – When approval is not required, a SERC can present recommendations to other authorities; and
- *Advisory Role* – Upon request, SERCs provide information or advice regarding important matters to the power sector.¹⁶

Criticisms and questions have been raised by a number of states regarding their new roles and by deregulation concerns expressed by other stakeholders¹⁷. There remains a tendency for some SERCs to favor the state-owned sector against private investors and some states simply have demonstrated little political or administrative commitment to support wholesale electricity reform.¹⁸

In response, in May 2004, the newly elected coalition Government (the United Progressive Alliance, or UPA) outlined a new policy blueprint, the “National Common Minimum Programme of the Government of India.” With regard to power infrastructure, the policy states:

“The review of the Electricity Act, 2003 will be undertaken in view of the concern expressed by a number of states. (Emphasis added.) The mandatory date of June 10, 2004 for unbundling and replacing the state electricity boards will be extended. The UPA government also reiterates its commitment to an increased role for private generation of power and more importantly power distribution”.¹⁹

This reassessment was also supported by recommendations made by stakeholders that want to accelerate market development for power trading and to increase private investment in the power sector.²⁰ Consequently, deadlines have been extended by MoP, including the June 10, 2004 deadline for unbundling and reorganizing SEBs and the disengagement of STUs from electricity trading.²¹

While MoP has undertaken a review of certain provisions of EA 2003, CERC remains a very active, functioning body that has issued several threshold decisions that constitute the basic provisions of EA 2003. At the state level, Orissa, Haryana, Andhra Pradesh, Uttar Pradesh, Karnataka, Rajasthan, Madhya Pradesh, Delhi, and Gujarat have enacted State Electricity Reform Acts to provide unbundling of SEBs and establishing SERCs. Unbundling has been implemented by Orissa, Haryana, Andhra Pradesh, Karnataka, Uttar Pradesh, Uttarakhand, Rajasthan, Delhi, Madhya Pradesh, and Assam. Twenty-four states have either constituted or

¹⁶ See “Governing Power – A New Institution of Governance: the Experience with Independent Regulation of Electricity”, S.L. Rao, Teri Press (2004) at page 164.

¹⁶ “National Common Minimum Programme of the Government of India, May 2004 (downloadable at <http://pmindia.nic.in/cmp.pdf>).

¹⁷ As one example of vested interests criticizing reforms, see the website of the Electricity Employees Federation of India at www.eefi.org, one of some eight delegations that make upon the thousands of employees of the public power sector. These delegations have contested efforts to unbundled SEBs and otherwise support privatization under EA 2003. See “Unions Discusses Power Policy with PM” and “Repeal Electricity Act 2003” at <http://pd.cpiim.org> (September 12, 2004 and October 24, 2004, respectively).

¹⁸ “Governing Power”, S.L. Rao, Teri Press (2004) at page 12.

¹⁹ “National Common Minimum Programme of the Government of India, May 2004 (downloadable at <http://pmindia.nic.in/cmp.pdf>).

²⁰ MoP also proposed amending EA 2003 to better facilitate new private investments in the power sector. A comprehensive report was issued in February 2004: “Report of the Task Force on Power Sector Investments and Reforms”, also downloadable from the MoP website.

²¹ See “Inaugural Speech of Shri P.M. Sayeed, Union Minister of Power” at CII Conference on Electricity Act 2003 – The Year After Progress Made and Challenges Ahead (July 24, 2004).

submitted notification of the constitution of SERCs; eighteen of these have issued tariff orders. States that require additional time are those that had not previously established SERCs, such as Manipur, Nagaland, Meghalaya, Arunchal Pradesh, and Mizoram. Distribution has been privatized in Orissa and Delhi. Nonetheless, the general consensus is that power sector reforms by states have progressed unevenly.²² Hence, substantial progress needs to be made in many states before EA 2003 overcomes the principal problem encountered under earlier legislation – there was no consistency among states and each state would protect local state-owned monopolies or subsidize vested interests. This was compounded by poor relations between SERCs and state governments. In Tamil Nadu, the state government for many years did not appoint a Chairman or release functions to its SERC; in Karnataka, the state government ordered the state transmission utility to not implement a tariff order.²³

Appendix A summarizes the general status of power sector reforms by state governments, prepared by the MoP. This summary can be compared to the power sector rating of states issued in January 2004 by CRISIL through the Power Finance Corporation (PFC).²⁴ Table 1-1 provides the rating scores assigned to each state and SEB based on its comparative assessment of seven factors, including state government and SERC. Each state government was evaluated in terms of the following: progress in reforming the power sector as defined in its MOU/MOA executed with MoP; progress in attaining **100%** rural electrification; track record of subsidy payment; timeliness in release of APDRP funds for power distribution improvements; providing structural adjustment support; success in increasing revenues through anti-theft measures, and success in increasing generating capacity through SEBs and independent power producers (IPPs). The SERC of each state was evaluated in terms of: timeliness of issuing tariff orders, implementation of tariff orders, and the nature and scope of tariff orders issued (states that have not yet set up a SERC assigned a negative mark of 2.5).

²² "Regulatory Uncertainty Still Prevails in the Power Sector", www.energylineindia.com (December 9, 2004). Also see "Joint Statement on Electricity Act 2003", National Workshop on EA 2003 for NGOs, Pune, organized by Prayas (Energy Group) and others (July 26 – 28, 2004). This statement calls for "far greater analysis and review prior to implementation", including "many state electricity regulatory commissions do not seem to acknowledge, let alone put to full and wise use, the full extent of their regulatory authority".

²³ "Governing Power – A New Institution of Governance: the Experience with Independent Regulation of Electricity", S.L. Rao, Teri Press (2004) at 174.

²⁴ See note 13.

Table 1-1: Ranking of State Power Sectors – Year 2003

Rank/State	State Govt.	SERC	Generation	T&D	Risk	Others	Commercial Viability	Total
1. Delhi	13.25	11.00	1.25	9.25	17.00	2.25	3.00	57.00
2. Andhra Pradesh	8.75	10.75	4.75	11.75	14.75	2.75	3.25	56.75
3. Goa	8.90	0.00	0.00	10.05	15.75	2.50	15.00	52.20
4. Karnataka	9.50	9.50	5.50	7.25	13.75	3.75	2.00	51.25
5. Gujarat	9.69	2.50	3.75	9.30	15.50	3.75	6.50	50.99
6. Haryana	14.75	9.50	1.50	7.25	13.13	2.50	1.00	49.63
7. Punjab	5.25	8.00	4.50	8.50	11.75	2.75	5.25	46.00
8. Himanachal Pradesh	7.78	2.50	5.00	11.13	8.75	3.00	6.00	44.16
9. Uttar Pradesh	9.50	10.50	2.25	6.60	9.75	2.00	1.25	41.85
10. Rajasthan	9.00	4.00	5.20	7.25	12.63	3.75	0.00	41.83
11. West Bengal	6.81	2.00	1.25	8.33	7.25	3.75	11.50	40.89
12. Tamil Nadu	4.75	9.00	3.00	9.50	9.63	1.75	2.00	39.63
13. Maharashtra	7.25	4.00	4.00	4.50	12.25	1.25	4.50	37.75
14. Uttaranchal	8.00	1.00	5.00	6.75	14.75	0.25	2.00	37.75
15. Kerala	4.00	0.50	2.50	13.00	10.00	3.00	1.25	34.25
16. Assam	5.93	4.00	1.00	5.50	6.50	2.00	2.50	27.43
17. Madhya Pradesh	6.90	3.00	2.00	6.10	4.75	0.00	2.00	24.75
18. Meghalaya	4.40	-2.50	2.00	7.38	6.25	2.00	3.50	23.03
19. Orissa	4.75	4.00	3.25	0.56	6.25	0.50	1.00	20.31
20. Sikkim	7.37	-2.50	0.50	1.50	8.00	1.00	0.00	15.87
21. Nagaland	9.00	-2.50	0.25	1.13	5.25	1.00	0.00	14.13
22. Tripurs	7.60	-2.50	1.50	1.00	4.00	1.00	1.25	13.85
23. Chhattisgarh	3.50	-2.50	2.25	8.58	2.00	0.00	0.00	13.83
24. Bihar	2.25	-2.50	0.25	2.63	6.00	1.00	1.00	10.63
25. Manipur	7.60	-2.50	1.00	0.50	2.00	2.00	0.00	10.60
26. Arunchal Pradesh	2.80	-2.50	0.00	0.00	6.50	1.00	1.25	9.05
27. Jammu & Kashmir	3.00	-2.50	3.50	1.00	3.50	0.00	0.00	8.50
28. Mizoram	5.30	-2.50	0.75	0.50	1.50	1.00	1.25	7.80

Source: Power Sector Rating, Consolidated Report to MoP (Revised); January 29, 2004 (CRISIL Ratings, ICRA Limited)

The following sections provide an explanation of this most recent annual rating of states and SEBs.

STATE GOVERNMENT PARAMETERS

Haryana, Delhi, Goa, Gujarat, Karnataka, and Uttar Pradesh scored higher than the rest of the states on account of good structural adjustment support provided to the utilities along with above average subsidy payment track record and satisfactory progress against targets laid down in MOU/MOA with the MoP;

- Many states are gearing up to provide aggressive financial and structural assistance to the respective power sectors taking the next step in reforms in the sector. These include formulation of Restructuring Plans and unbundling on functional lines. With these developments in view, the scores are expected to increase for year 2004.
- States need to pro-actively address the issues of addition to the power generation capacity in the state to cope up with the increasing demand in the sector.

- Most SEBs in the northeast and in Sikkim, despite having taken limited steps in terms of reforming the sector, have been able to secure decent scores against the parameter 'subsidy payable' – since the non-plan expenses to the SEBs for meeting cash shortfall is being treated as subsidy payment. However, for most of these states, the non-plan allocation for meeting the expenses of the SEB are stagnating, implying curtailing of power purchases unless cash collections are stepped up significantly.

SERC PARAMETERS

- Some states – Delhi, Andhra Pradesh, Uttar Pradesh, Haryana, Karnataka, and Tamil Nadu – score well on the SERC related parameters on account of developed tariff philosophies leading to timely release and implementation of tariff orders.
- Many SERCs have provided operational codes and guidelines in addition to the annual tariffs and subsidy payments.
- Scores for states like Gujarat, Maharashtra, and Himachal Pradesh, despite functional SERCs, are affected because of the delay on the part of utilities to file tariff petitions.
- Assam, which constituted the SERC last year, has earned a comparatively good score.
- West Bengal is affected by the tariff philosophy adopted by the West Bengal Electricity Regulatory Commission (WBERC) and the consequent litigation and delay in releasing subsequent orders.

The role of states in regulating India's power sector prior to EA 2003 has a mixed history:

While all states have taken the decision, in principle, to reform the power sector and several have operational State Electricity Regulation Commissions, some states have appeared reluctant to proceed with reform, (for example Kerala) while others (notably Orissa and Haryana) had their Electricity reforms legislation in place well before the ERC Act was enacted by the Central Government. However, even in this diversity there is one common thread running through all the SEBs – reforms taking place are largely influenced by the lending policies and incentives (and disincentive) schemes of the multilateral, bilateral and domestic aid/funding institutions (at 3).”²⁵

There are no less than 14 provisions of EA 2003 that expressly involve states and SERCs:²⁶ these are described in the following sections.

2.1 STATE INPUT IN THE NATIONAL ELECTRICITY POLICY AND TARIFF PLAN²⁷

An underpinning of EA 2003 is that the Government of India would provide a National Electricity Policy (NEP) and Tariff Plan to direct future regulation of the power sector. The NEP would take a 15-year perspective that is updated every 5 years to provide “for development of the power system based on optimal utilization of energy resources (coal, natural gas, nuclear substances or materials, hydro, and renewable sources of energy).”

The EA 2003 provides for the first NEP to be developed in consultation with the state governments under the direction of the Central Electricity Authority (CEA). Subsequently, the CEA would be responsible for revising and updating the NEP, while also giving consideration to suggestions and objections not only from states but also from licensees, generating companies, and the public.

State consultation in preparation of the NEP is expressly directed at providing a “policy for rural and remote areas, permitting and stand alone systems for rural areas (included power systems utilizing renewable and non-conventional sources of energy).” As part of addressing the needs of rural areas in the NEP, the Government of India would also consult with states and SERCs to formulate policies for rural electrification and the bulk power purchases and management of electricity distribution in rural areas through “Panchayat Institutions, users’ associations, co-operative societies, non-governmental organizations or franchisees.” In this way, states would supply electricity to all rural areas within India, including villages and hamlets.²⁸

The first NEP approved by the Cabinet in February 2005, which aims to provide electricity connections to all households by year 2012, is provided as Appendix B. A number of stakeholders have argued that the NEP was introduced in June 2004 and approved in

²⁵ “Power Sector Reform in India – an Overview”, Antonette D’Sa.

²⁶ SERCs are referred to in EA 2003 as “State Commissions”.

²⁷ EA, 2003, Part II – National Electricity Policy and Plan, see Clauses 3 – 6.

²⁸ The role of State governments under this Clause 6 of Part II is by virtue of States being including as an “Appropriate Government” under EA 2003, which includes certain entities of the Central Government.

February 2005 without adequate review.²⁹ However, a considerable amount of comment was provided. For example, a 26-page letter of comments was submitted by Prayas, a non-governmental organization (NGO) based in Pune that was one of a number of stakeholders invited by MoP to comment on the report (with two appendices) of the task force that developed the draft NEP. Although the process of enlisting comments was criticized, Prayas' comments provided detailed criticisms that were submitted prior to publication of the draft plan by MoP.³⁰ Nonetheless, approving the NEP, which is mandated under Section 3 of EA 2003 prior to, and separately from, the full review of EA 2003 has been criticized. In response, the Government of India has taken the position that only certain provisions of EA 2003 were subject to review, not the whole Act. Moreover, the Government of India has underscored that the NEP is only one of the policies to be developed pursuant to EA 2003. Over the coming months MoP has or will issue a National Tariff Policy, a Rural Electrification Policy, and Guidelines for Competitive Bidding.³¹ While the NEP addresses many related issues, such as setting tariffs for below poverty line consumers at **50%** of the average cost of supply over the next five years, it will be subject to the additional provisions of these related but separate policy directives issued by MoP.

In mid-February 2005, a group constituted by the Forum of Indian Regulators recommended adoption of the avoided-cost method for computation of surcharge (cross-subsidy) payable under the open access policy stipulated in EA 2003. The group was set up following a decision in the December 2004 meeting of the Forum that represents all central and regional electricity regulatory bodies. The group has argued that the avoided cost approach balances the objectives of safeguarding the financial viability of the licensee and promotion of competition. The group has, however, refrained from recommending a similar formula in case of additional surcharge, saying that no cut-and-dried method can be prescribed in the present scenario of deficit power generation. Apart from the recommended avoided-cost method, the group also deliberated over three other alternate methods – average cost, embedded cost, and marginal cost. The proposed methodology involves estimation of the projected capacity that is likely to move away due to open access and considers the weighted marginal cost for power purchases avoided from marginal sources as avoided cost for variable components of power purchase. Further, to arrive at the avoided cost of power supply, other charges like applicable fixed charges of power purchase and transmission and wheeling charges will be added to the avoided cost. Finally, the cross-subsidy surcharge will be worked out by deducting the avoided cost of supply from the average realization under a consumer category.³²

2.2 STATE SUPPORT OF POWER GENERATION COMPANIES³³

EA 2003 encourages states to establish, operate, and maintain power generation stations (i.e., stand-alone and captive power projects with excess capacity), including dedicated transmission lines, by eliminating the need for such projects to obtain a license as long as they meet technical requirements for connecting to the power grid. In doing so, a state would

²⁹ "Draft National Power Policy and CERC's Competition Policy", Prabir Purkayastha, www.eefi.org (October – December 2004 Digest). Also, see "Govt. Approves Electricity Policy – Aim to Increase Per Capita Availability to Over 1,000 Units", Hindu Businessline.com (February 2, 2005).

³⁰ "Comments on the Report of the Task Force including Appendix A and Appendix B that Suggest National Tariff and Electricity Policy", letter to Joint Secretary, MoP (June 3, 2004). This statement and subsequent updates are downloadable at its website: www.prayasapune.org.

³¹ The National Tariff Policy is due to be issued in March 2005. In February 2005 MoP's website included copies of the notifications for the NEP and procurement of power and tariff setting by competitive bidding.

³² See "Avoided Cost Methodology Recommended for Computation of Surcharge Under Open Access Policy", www.energyline.com (February 16, 2005).

³³ EA, 2003, Part III – Generation of Electricity, Clause 7

identify its power demand and earmark a ranking of thermal and hydro projects. It is suggested that states establish a “one-window” clearance program for environmental clearances and allocation of power. Moreover, states are not allowed to approve generating projects that exceed a capital expenditure cap that the CEA might establish.

For hydro projects, CEA must be satisfied on matters related to the optimal location of dams and river-works, dam design and safety, and the requirements of states regarding drinking water, irrigation, navigation, flood control, and other public purposes. States are also required to coordinate inter-related activities of multiple purpose hydro projects.

With regard to operation and interconnection of generating plants, states must ensure the right to open access for power transmission, either with dedicated transmission lines or interconnection with the Central Transmission Utility (CTU), which has been designated as PowerGrid of India, and/or the State Transmission Utility (STU).

Disputes are to be adjudicated by the Appropriate Commission – either CERC or the relevant SERC – which is also empowered to specify operating and maintenance conditions related to a threat to security, public order, or a natural calamity or to otherwise offset adverse financial impacts caused by the generating station.

2.3 STATE INPUT INTO LICENSING OF ELECTRICITY TRADING³⁴

SERCs are to license transmission licensees to transmit electricity, distribution licensees to distribute electricity, and electricity traders to trade in electricity (licensing does not apply to an appropriate government that transmits, distributes, or trades electricity prior to enactment of EA 2003).³⁵ In doing so, and as with the case of licenses issued by CERC, SERCs may grant licenses to two or more licensees for distribution within the same area that meet CERC eligibility requirements (such as capital adequacy, creditworthiness, or code of conduct). Licenses to generate and distribute in rural areas are not required if notification is given to the states and a distribution licensee is not required to obtain a license to trade electricity.

Similar to the licensing applications requirements that have been established by CERC, SERCs are to prescribe requirements for license fees and application approval requirements regarding notification in order to consider any objections. Applicants for transmission licenses are required to immediately provide copies to the CTU and STU, as appropriate.

2.4 THE ROLE OF STATES IN ELECTRICITY TRANSMISSION³⁶

For intrastate power transmission, states are required to establish a SLDC, to be operated by a designated state government entity established under any State Act. The relevant SERC may direct the SLDC or the Regional Load Dispatch Centre (RLDC), as appropriate, to take measures for maintaining smooth and stable transmission and supply of power to any region within the state.

States may also designate a STU that, like the CTU, cannot engage in trading electricity. The STU undertakes transmission of electricity through its intrastate transmission system, including all related planning and coordination with the CTU, state government, generating companies, regional power committees, CEA, and licensees.

³⁴ EA, 2003 – Part IV – Licensing, Clauses 13 and 14.

³⁵ “Appropriate Government” is defined by in Part I of EA 2003 as State Governments and any generating company, transmission company, distribution company or trading entity owned in whole or part of the Central Government.

³⁶ EA, 2003, Part IV, Clauses 31, 37, 38 (2)(b) and 39.

In addition, states are to ensure that the CTU plans and coordinates with the state and STU for interstate transmission to ensure efficient, coordinated, and economical use of interstate transmission lines for power flows between generating stations and load centers. Otherwise, states and STUs work with the CTU as the STU and CTU carry out their separate functions related to ensuring non-discriminatory open access, payment of applicable transmission surcharges needed to meet current cross-subsidies (except captive plants transmitting power for internal use).

2.5 STATE INPUT INTO LICENSING OF ELECTRICITY DISTRIBUTION³⁷

States are to provide CEA with their input regarding the conditions to issuance of distribution licenses that relate to safety involving personal injury and property damage risks caused by supply, installation, maintenance, or use of electric line and plants. This includes the distribution licensee providing notice to the Electrical Inspector (appointed under Part I of the EA 2003 by either the Government of India or the state government, as appropriate) regarding accidents, supply, or transmission failures. In related sections involving distribution licensees, only the CTU, a STU, or a licensee can transmit electricity greater than 250 W and 100 volts in any street or place (as defined in Clause 54 of the EA 2003). Moreover, no distribution licensee may supply electricity except using meters that meet regulatory requirements established by the SERC.

2.6 CONTROL AND USE OF TRANSMISSION OF ELECTRICITY³⁸

Unlike other provisions of EA 2003 directed at opening up competition in power generation and distribution, the statute retains power transmission as primarily a government responsibility by the CTU and STUs, although private companies can be licensed to transmit electricity under licensing requirements established by CERC and SERCs.³⁹ State governments are responsible for resolving disputes (involving more than 100 persons) regarding the transmission and use of electricity. A provision is included requiring transmission licensees to install meters in accordance with regulations established by CERC and SERCs within two years of a date established by the Government of India.

2.7 STATE TARIFF REGULATION⁴⁰

Part VI of EA 2003 provides CERC and SERCs with the authority to issue tariff orders from time to time, after notification to the Government of India and the state governments.⁴¹ An application process is outlined whereby a generating company, distribution licensee, or transmission licensee publishes an application and pays a fee in accordance with regulations issued by CERC and SERCs. Within 120 days of an application filing, CERC and SERCs consider public suggestions and objections and issue a tariff order, subject to specified conditions and a specified duration of effectiveness (subject to amendment and revocation).

³⁷ EA, 2003 Part IV, Clause 53.

³⁸ EA, 2003 Part IV, Clauses 54 and 55.

³⁹ PowerGrid of India, the CTU, has established several years ago rules for attracting private investment in the transmission sector, through joint ventures or private ownership, simply as a means for enlisting the huge amounts of capital investment needed to complete the National Grid Plan. Generally, there has been limited response from private developers and tenders by the CTU are relatively few in number. Two recent developments have been that PGCIL has recently announced plans to raise additional capital on its own by issuing an IPO (following the success of IOC, PTC and NTPC); also some private developers that also are distribution licensees, such as Reliance Power Trading, has challenged through CERC the monopoly of the need for obtaining PGCIL approval for building transmission lines, especially lines that are dedicated to serve distribution areas of its own.

⁴⁰ EA, 2003 Part VII, Clauses 64 and 65.

⁴¹ See footnote 3, Section 3.9 regarding the intrusion of GoI's Task Force on Power Sector Investments and Reforms (February 2004) in which in a response to an inquiry of proposed reforms of EA 2003 "CERC underscored the exclusive jurisdiction of the national and state electricity regulators (CERC and SERCs) by specifically citing that no provision in EA 2003 restores back to the central and State Governments the authority to specify tariff terms and conditions...."

Otherwise, after allowing for a reasonable opportunity to be heard, the application is rejected, in which case CERC and SERCs provide a written explanation for why the application is not in accordance with applicable regulations. Tariffs involving interstate supply, transmission, or wheeling of electricity involving two states are subject to the SERC that is determined to have jurisdiction as provided by regulations for interstate transactions established by CERC and SERCs. In the case where the SERC determines the grant of any tariff subsidy to any consumer or class of consumers, the state government pays the subsidy. Given that a primary objective of EA 2003 is to provide for the gradual elimination of tariff subsidies, or at least requiring metering of subsidized customers such that the actual amount of subsidy is known, the issuance of tariff regulation by CERC and SERC is the single most contentious and politicized issue that was responsible for states and certain other stakeholders to include review of EA 2003 as part of the UPA's National Common Minimum Programme of the Government of India.

2.8 STATE LICENSING OF WORKS

States are to make rules for licensees issued under Section 14 (a transmission licensee, a distribution licensee, and an electricity trader) for granting permission of to carry out work necessary for the transmission or supply of electricity. Such rules would determine the procedures and compensation or rent for carrying out works, such as repairs and alterations to streets, railways, tunnels, and so forth. Specific provisions are provided for installing overhead lines, including removal of trees and other obstructions that interfere with the conveyance or transmission of electricity.

2.9 CEA AND STATES

EA 2003 outlines the formation and functions of the Central Electricity Authority (CEA), which advises the Government of India on developing a national electricity policy and other matters related to the technical operation and maintenance of the national power system. Similarly, CEA advises states, licensees, and generating companies on all technical matters regarding power generation, transmission, and distribution. However, CEA's techno-economic clearances, which were prerequisites for approving any power schemes developed by states, have been reduced. Only certain size hydro stations will require CEA clearance, with other projects governed by the competitive bidding guidelines developed by CERC.

2.10 STATE ELECTRICITY REGULATORY COMMISSIONS

Despite the history of power regulation in India prior to the ERC Act 1998, effective independent regulation by states remains a relatively new and untested process. As described by one source, although the Indian regulatory system superficially resembled systems in other countries, Indian regulators would completely re-examine retail tariffs every year under a traditional cost-of-service tariff system and typically would have regulated public rather than private entities. Government-owned companies generally ignored their directives because the regulators had little or no ability to impose rewards and penalties on them. "As one Indian regulator observed, "My orders are just pretty poetry."⁴²

Most SERCs were established under the ERC Act 1998 or state legislation between July 1998 and December 2000, as shown in Table 2-1.

⁴² "Regulation by Contract: A New Way to Privatize Electricity Distribution?", World Bank Energy & Mining Sector Board Discussion Paper No. 7 (March 2003) at 29.

Table 2-1: Chronology of Establishing Selected SERCs

OERC – Orissa Electricity Regulatory Commission	August 1996
CERC – Central ERC	July 1998
MPERC – Madhya Pradesh ERC HERC – Haryana ERC	August 1996
UPERC – Uttar Pradesh ERC	September 1998
GERC – Gujarat ERC	November 1998
APERC – Andhra Pradesh ERC DERC – Delhi ERC WBERC – West Bengal ERC	March 1999
MERC – Maharashtra ERC KEREC – Kerala ERC	August 1999
RERC – Rajasthan ERC	December 1999
HPERC – Himachal Pradesh ERC	December 2000

Source: Prayas Energy Group survey (2003)

In 2002-03, SERCs were also formed in the states of Uttranchal, Punjab, Goa, and later Bihar.

Part X of EA 2003 governs SERCs. Clause 82 requires constituting an electricity regulatory commission within six months, with SERCs previously established under the ERC Act 1998 to remain effective and continue. Clauses 84 and 85 relate to the composition and selection of the SERCs, which consist of three members including the chairperson (maximum 5 year term with no reappointment under Clause 89). Clause 86 outlines the functions of a SERC, including: determine tariffs for generation, supply, transmission, and wheeling of electricity (wholesale, bulk, or retail); regulate the power purchases and procurement process of distribution licensees regarding power supplied and distributed within the state; facilitate intrastate transmission and wheeling of electricity; issue licenses regarding transmission, distribution, and electricity trading within the state; promote cogeneration and generation using renewable energy sources; adjudicate disputes between licenses and generating companies; levy fines; specify a State Grid Code; specify or enforce standards regarding quality, continuity, and reliability of service by licensees; fix the trading margin for intrastate power trading; promote investment and reorganization of the electricity industry and other matters concerning power generation, transmission, and distribution, while guided by the National Electricity Policy and Plan and the National Tariff Policy developed by CERC.

Additional clauses of EA 2003 that relate to the interaction of state governments and SERCs include: Clauses 102-106 (states may loan or grant monies to SERCs for establishing SERC funds to support salaries and other expenses, in consultation with the Comptroller and Auditor General of India and SERCs to prepare annual reports) and Clause 108 (state governments to guide SERC in matters involving public interest).

2.11 STATE ROLE IN INVESTIGATION AND ENFORCEMENT

Part XII of EA 2003 outlines provisions for investigating and enforcing of rules for inspecting equipment and devices used in the unauthorized use of electricity. Upon a finding of meter tampering or other unauthorized use by an assessing officer, unauthorized use is presumed for a preceding period of three months for domestic and agricultural services or six months for other services, and the user is charged at rate of one and one-half times for the applicable tariff category of services.

2.12 STATE REORGANIZATION OF STATE ELECTRICITY BOARDS

Part XIII of EA 2003 provides that states prepare a transfer scheme to vest all property, rights, and liabilities of the SEB in the State government and for the state to re-vest such property, rights, and liabilities as the State Transmission Utility or generating company or distribution licensee, as the case may be. The transfer value is to be based on the agreed revenue potential of the re-vested assets and all debts and obligations are to be honored by the transferee of the reorganized scheme. If state-owned, the sale proceeds are first used to pay obligations due employees and existing loans, and personnel officers and employees may be transferred to the newly reorganized entity.

2.13 STATE IMPOSITION OF PENALTIES FOR OFFENSES

Part XIV of EA 2003 provides for the inspection and searches of premises and documents and the imposition of criminal penalties for the theft and unauthorized use of electricity by defining such unauthorized use (e.g., tapping into lines, meter tampering, meter damage) and imposes fines based on use (if less than 10 KW, first convictions equal at least three times the financial gain and second convictions equal at least six times; over 10 KW, first convictions are the same but the penalty for second and subsequent convictions is six months to five years imprisonment with a fine not to exceed six times the financial gain of the electricity theft).

2.14 SPECIAL COURTS CREATED BY STATES

Part XV of EA 2003 provides for states to constitute special courts consisting of a single judge to administer a speedy trial for offenses related to the damage and theft of electrical works and electricity.

2.15 DISPUTE RESOLUTION BY STATES

Part XVI of EA 2003 provides for states and SERCs to make rules and regulations for carrying out provisions for payment of license fees, and other rules and regulations subject to approval of the appropriate State Legislature.

In view of the UPA decision to respond favorably to the request of certain states to review EA 2003, it is not surprising that state reforms have been slowed and implemented inconsistently.⁴³

Following reforms influenced by the lending policies of the World Bank, ADB, USAID, and other multilateral, bilateral and domestic lenders, in 1996, Orissa was the first state to adopt the management model endorsed by the Government of India. This model called for unbundling the SEB into generation (thermal and hydro), transmission, and distribution companies (involving privatization of selected distribution zones). This was followed by unbundling in Haryana, Andhra Pradesh, and Uttar Pradesh, which utilized restructuring loans from the World Bank's Adaptable Loan Program. In Karnataka, which had separated its generation from transmission and distribution functions in 1970, the SEB was reorganized as newly formed corporations for each function. Unbundling by itself, however, did not address various problem areas that persisted:⁴⁴

- Unbundled SEBs continued to be subsidized for electrical connection made to disadvantaged customers; the provision of free and subsidized electricity is only now being rationalized under the tariff policies developed under EA 2003;
- By itself, unbundling has increased operating costs of SEBs and increases tariffs for uncontrolled customers;
- Unbundling did not provide for how transmission companies would pay for reducing transmission losses and how much of the costs for reducing distribution losses would be passed on to customers;
- Unbundling needed to be accompanied by increased coordination between generators and transmission companies in order to dispatch loads efficiently; and
- Unbundling focused on providing supply increases rather than mandating efficiency improvements, environmentally sound development, and integrated electricity planning.

Hence, unbundling deadlines are expected to be extended further upon notifications issued by SERCs.

Similarly, a more political view has been taken by the Government of India with other proposed amendments of EA 2003, such as the objective for states to eliminate or cap (e.g., **20%** over a five-year period) cross-subsidies of power tariffs:

*“Elimination of cross-subsidies is only a theoretical issue. Total elimination is not possible in a country like India, where poverty is a serious problem. Even in countries like the United States, cross-subsidization exists for rural electrification in the form of preference of power.”*⁴⁵

⁴³ This section draws upon a state review undertaken in September 2004 by Prayas, the NGO based in Pune and referenced in footnote 21, updated based on a website search of SERCs.

⁴⁴ Power Sector Reform in India – an Overview, Antonette D'Sa,

⁴⁵ 'Power Cross-Subsidy to Continue', Business Standard, July 12, 2005.

In other words, given the Act's recognition of the differences between rural and urban areas in India, regulation of the power sector by market forces is not uniformly desirable across India as a matter of national policy. Rather, the level of subsidization should be decided by individual states in accordance with their circumstances.

Hence, there remains conflict between the central Government of India and the state governments, as well as between CERC and SERCs, regarding the implementation of EA 2003. As one source related:

*"So, if the central/state government wants to delay the introduction of competition in the sector, that is what the regulators will have to do. Right now, the regulator is guided by government policy, but is free to act on its own."*⁴⁶

Moreover, the independence of state regulators under EA 2003 is being debated even within the Government of India; for example, the Ministry of Finance opposed MoP's amendments mandating that regulators follow the National Electricity Policy Act and emerging National Tariff Policy. As stated by a senior finance ministry official, "(w)e have sent a note to the power ministry in response to its Cabinet note wherein we have, as a whole, backed the regulators' view that their autonomy is an integral component of power sector reforms."⁴⁷ The Finance Ministry suggests that regulators should, instead, decide a year in advance of reducing cross-subsidies to avoid sending wrong signals to investors:

*"The proposal to rob the regulators of their discretion could also be construed as converting the regulator completely into an arm of the government ... (it)t is not apparent why the need for this amendment has risen at all. Since 1998 a large number of state electricity acts have introduced provisions for an independent regulator. The Electricity Act was also enacted in 2003. There has been no case of major conflict between the regulators and the government that necessitates such amendments."*⁴⁸

This was emphasized at a Forum of Regulators convened in Mumbai in July 2005, where state regulators opposed MoP's proposal to amend EA 2003 (Sections 61, 66, 76, 86, 107, and 108) fearing that the proposed amendments "have the potential of being used by the government of the day so that almost every sentence of the (Government of India's) policy instruments becomes a directive to the Commission" ... (thereby impinging on regulators' ability) "to function in an impartial and transparent manner in consultation with all stakeholders, including the government."⁴⁹

In response to criticisms from the Finance Ministry, the Central Planning Commission, and state governments, MoP has retracted from limiting the role of states and SERCs in setting power tariffs and otherwise diluting the power of regulators. For example, MoP proposed to amend EA 2003 and change language, such as "the regulators shall be guided by," with (the regulators) "shall act in conformity with" the National Electricity Policy and Tariff Policy, thereby strengthening the role of policies as defined by the Government of India. Subsequently, MoP indicated that "these are only proposals put forward after consultations with various stakeholders, state governments and others. Our stand is very flexible and a decision has yet to be taken".⁵⁰

⁴⁶ "Power Politics", Business Standard, August 2, 2005.

⁴⁷ "FinMin Thwarts Move to Attack Autonomy of Power Regulators", The Financial Express, July 31, 2005.

⁴⁸ "Amendments in Electricity Act Will Send Wrong Signals to Investors: Fin Min", The Financial Express, August 4, 2005.

⁴⁹ "Amending Electricity Act Would Be Retrograde Step: Power Regulators", The Financial Express, July 22, 2005.

⁵⁰ "No Final Word Yet on Regulator's Powers: Shahi", Business Line, August 4, 2005; also see "Power Ministry Favours Strong Regulatory Set-Up", Business Line, August 8, 2005.

The need to strike a balance between national and state and local interests is fundamental to all governments, but perhaps nowhere else more so than in India. With a population of over 1.5 billion spread throughout a subcontinent separated into 29 states and 6 territories, India is a mix of the most urbanized and most rural areas found anywhere in the world. This diversity, however, is India's strength. Fueled by an economy having an annual GDP growth exceeding 7%, and with the benefit of instituting a decade of power reforms, the mandate and provisions provided by EA 2003 provides India with a sound statutory basis for achieving its goal of providing access to affordable, reliable electricity to all citizens within the coming decade:

- EA 2003 provides the legal framework necessary for directing power reforms at the national level, while accommodating the unique character and needs of individual states. However, rather than implementing EA 2003 through statutory amendments, emphasis should be directed at change made through regulatory orders issued pursuant to adjudicatory hearings involving a balance of interests involving all stakeholders.
- Given the diversity among states, from Delhi to Mizoram, to comparatively rank the success of EA 2003 in terms of statutory compliance is of limited use. Instead, the success of EA 2003 should be measured in terms of the actions undertaken to date by CERC and progressive SERCs, such as Delhi, Haryana, Andhra Pradesh, Uttar Pradesh, and Karnataka, and the demonstrated progress made by other states and SERCs;
- The debate surrounding EA 2003 is characterized by rhetoric and political posturing. EA 2003 has become the whipping post for resistance to privatization, tariff rationalization, and transparent subsidies. There is nothing inherent in EA 2003 that requires favoring urban India at the expense of rural India. EA 2003 has been used for various political purposes and characterized as having a life of its own. The success of EA 2003 will be determined in how and when it will be implemented by governments and regulators, not by statutory wordsmithing. Virtually all of the so-called "amendments" that have been touted embody policy goals and priorities that are misplaced as matters of statutory change. Moreover, most proposed objections to EA 2003 rest in preserving and accepting existing circumstances and traditional dominance by the Government of India. These objections do not account for future change that inevitably will be enabled by market forces and positive contributions made by states that respond to stakeholders that are provided a fair and public hearing.

Appendix A

Status of Reforms and Restructuring of States

Sr	Main Aspects	NR								WR					SR				ER				NER										
		Delhi	Haryana	H.P.	J&K	Punjab	Rajasthan	U.P.	Uttanchal	Chhattisgarh	Gujarat	Goa	M.P.	Maharashtra	A.P.	Karnataka	Kerala	Tamil Nadu	Bihar	Jharkhand	Orissa	West Bengal	Assam	Meghalaya	Andhra Pradesh	Mizoram	Manipur	Nagaland	Tripura	Sikkim	Total		
1	SERC Constituted	1999	1998	01/01	X	03/99	1999	09/98	01/02	2001	11/98	04/02	08/98	1999	07/99	1999	2002	03/99	Not.	2003	05/96	01/99	08/01	X	JERC Under Consideration				X	02/04	Notif.	23	
2	Operation of SERC	√	√	√	X	√	√	√	√	√	√	*	√	√	√	√	√	√	X	√	√	√	√	X	X	X	X	X	X	√	X	20	
3	No. of T/O Issued & Yr. of Last T/O	3 06/04	3 2003	2 2004	X	1 2002	1 2001	4 2003	1 2003	X	2 2004	X	2 2002	3 2003	5 2004	3 2003	1 2004	1 2003	X	1 2003	5 2003	2 2004	1 2003	X	X	X	X	X	X	X	X	18	
4	Signing of MOU	√ 3/03	√ 02/01	√ 03/01	√ 04/02	√ 03/01	√ 03/01	√ 02/00	√ 03/01	√ 01/01	√ 01/01	√ 10/01	√ 05/00	√ 03/01	√ 03/01	√ 02/00	√ 08/01	√ 01/02	√ 09/01	√ 04/01	√ 06/01	√ 05/01	√ 03/01	√ 11/02	√ 7/02	√ 7/02	√ 7/04	√ 9/02	√ 8/03	√ 12/02	29		
5	Signing of MOA		√ 02/02	√ 02/02	√ 2/03	√ 8/02	√ 7/02	√ 9/02	√ 12/02	√ 10/02	√ 6/02	√ 11/02	√ 09/02	√ 06/02	√ 05/02	√ 10/02	√ 07/02	√ 12/02	√ 11/02	√ 03/03	√ 07/02	√ 07/02	√ 07/02								√ 02/03	√ 08/03	√ 07/03
6	Signing of TPA	√ 12/04	√ 07/02	√ 10/02	√ 07/02	√ 07/02	√ 11/02	√ 07/02	√ 09/02	√ 07/02	√ 06/02	√ 07/02	√ 07/02	√ 03/03	√ 07/02	√ 06/02	√ 08/02	√ 06/02	√ 11/02	√ 09/02	√ 07/02	√ 07/02	√ 07/03	√ 02/03	√ 08/03	√ 07/03	√ 02/03	√ 08/02	√ 07/03	√ 11/03	29		
7	Unbundling/ Corporatization	√ 07/02	√ 08/99	Ext. 06/05		Ext. 12/04	√ 07/00	√ 01/00	√ 2001	Ext. 12/04	Ext. 12/04		√ 2002	Ext. 12/04	√ 1999	√ 1999	Ext. 06/05	Ext. 06/05	Ext. 12/04	Ext. 03/05	√ 04/96	Ext. 06/05	Ext. 10/04	Ext. 06/05							9		
8	Privatization of Distribution	√ 07/02																			√ 1999										2		
9	11KV feeder Metering	√	√	89%	40%	√	√	√	√	70%	√	√	√	97%	√	√	√	√	41%	86%	84%	98%	64%	62%	0%	76%	21%	40%	√	49%	95%		
10	Consumer Metering	100%	92%	100%	40%	100%	94%	91%	87%	72%	93%	95%	63%	88%	91%	80%	100%	81%	50%	62%	81%	97%	90%	44%	46%	52%	82%	61%	81%	62%	86%		

Note: * Chairman to be reappointed

Legend

√ = Existing/Done

X = Not Done

Ext. = Extension

Notif = Notified

The Gazette of India

**EXTRAORDINARY
PART I - Section 1
PUBLISHED BY AUTHORITY
No...., New Delhi, Dated
Ministry of Power**

New Delhi,
Dated the 12th, February, 2005

RESOLUTION

No. 23/40/2004-R&R (Vol. II)

1.0 INTRODUCTION

1.1 In compliance with section 3 of the Electricity Act 2003 the Central Government hereby notifies the National Electricity Policy.

1.2 Electricity is an essential requirement for all facets of our life. It has been recognized as a basic human need. It is a critical infrastructure on which the socio-economic development of the country depends. Supply of electricity at reasonable rate to rural India is essential for its overall development. Equally important is availability of reliable and quality power at competitive rates to Indian industry to make it globally competitive and to enable it to exploit the tremendous potential of employment generation. Services sector has made significant contribution to the growth of our economy. Availability of quality supply of electricity is very crucial to sustained growth of this segment.

1.3 Recognizing that electricity is one of the key drivers for rapid economic growth and poverty alleviation, the nation has set itself the target of providing access to all households in next five years. As per Census 2001, about **44%** of the households do not have access to electricity. Hence meeting the target of providing universal access is a daunting task requiring significant addition to generation capacity and expansion of the transmission and distribution network.

1.4 Indian Power sector is witnessing major changes. Growth of Power Sector in India since its Independence has been noteworthy. However, the demand for power has been outstripping the growth of availability. Substantial peak and energy shortages prevail in the country. This is due to inadequacies in generation, transmission & distribution as well as inefficient use of electricity. Very high level of technical and commercial losses and lack of commercial approach in management of utilities has led to unsustainable financial operations. Cross-subsidies have risen to unsustainable levels. Inadequacies in distribution networks has been one of the major reasons for poor quality of supply.

1.5 Electricity industry is capital-intensive having long gestation period. Resources of power generation are unevenly dispersed across the country. Electricity is a commodity that cannot be stored in the grid where demand and supply have to be continuously balanced. The widely

distributed and rapidly increasing demand requirements of the country need to be met in an optimum manner.

1.6 Electricity Act, 2003 provides an enabling framework for accelerated and more efficient development of the power sector. The Act seeks to encourage competition with appropriate regulatory intervention. Competition is expected to yield efficiency gains and in turn result in availability of quality supply of electricity to consumers at competitive rates.

1.7 Section 3 (1) of the Electricity Act 2003 requires the Central Government to formulate, inter alia, the National Electricity Policy in consultation with Central Electricity Authority (CEA) and State Governments. The provision is quoted below:

"The Central Government shall, from time to time, prepare the National Electricity Policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy".

Section 3 (3) of the Act enables the Central Government to review or revise the National Electricity Policy from time to time.

1.8 The National Electricity Policy aims at laying guidelines for accelerated development of the power sector, providing supply of electricity to all areas and protecting interests of consumers and other stakeholders keeping in view availability of energy resources, technology available to exploit these resources, economics of generation using different resources, and energy security issues.

1.9 The National Electricity Policy has been evolved in consultation with and taking into account views of the State Governments, Central Electricity Authority (CEA), Central Electricity Regulatory Commission (CERC) and other stakeholders.

2.0 AIMS & OBJECTIVES

The National Electricity Policy aims at achieving the following objectives:

- Access to Electricity - Available for all households in next five years
- Availability of Power - Demand to be fully met by 2012. Energy and peaking shortages to be overcome and adequate spinning reserve to be available.
- Supply of Reliable and Quality Power of specified standards in an efficient manner and at reasonable rates.
- Per capita availability of electricity to be increased to over 1000 units by 2012.
- Minimum lifeline consumption of 1 unit/household/day as a merit good by year 2012.
- Financial Turnaround and Commercial Viability of Electricity Sector.
- Protection of consumers' interests.

3.0 NATIONAL ELECTRICITY PLAN

3.1 Assessment of demand is an important pre-requisite for planning capacity addition. Section 3 (4) of the Act requires the Central Electricity Authority (CEA) to frame a National Electricity Plan once in five years and revise the same from time to time in accordance with the National Electricity Policy. Also, section 73 (a) provides that formulation of short-term and perspective plans for development of the electricity system and coordinating the activities

of various planning agencies for the optimal utilization of resources to subserve the interests of the national economy shall be one of the functions of the CEA. The Plan prepared by CEA and approved by the Central Government can be used by prospective generating companies, transmission utilities and transmission/distribution licensees as reference document.

3.2 Accordingly, the CEA shall prepare short-term and perspective plan. The National Electricity Plan would be for a short-term framework of five years while giving a 15 year perspective and would include:

- Short-term and long term demand forecast for different regions;
- Suggested areas/locations for capacity additions in generation and transmission keeping in view the economics of generation and transmission, losses in the system, load centre requirements, grid stability, security of supply, quality of power including voltage profile etc. and environmental considerations including rehabilitation and resettlement;
- Integration of such possible locations with transmission system and development of national grid including type of transmission systems and requirement of redundancies; and
- Different technologies available for efficient generation, transmission and distribution.
- Fuel choices based on economy, energy security and environmental considerations.

3.3 While evolving the National Electricity Plan, CEA will consult all the stakeholders including state governments and the state governments would, at state level, undertake this exercise in coordination with stakeholders including distribution licensees and STUs. While conducting studies periodically to assess short-term and long-term demand, projections made by distribution utilities would be given due weightage. CEA will also interact with institutions and agencies having economic expertise, particularly in the field of demand forecasting. Projected growth rates for different sectors of the economy will also be taken into account in the exercise of demand forecasting.

3.4 The National Electricity Plan for the ongoing 10th Plan period and 11th Plan and perspective Plan for the 10th, 11th & 12th Plan periods would be prepared and notified after reviewing and revising the existing Power Plan prepared by CEA. This will be done within six months.

4.0 ISSUES ADDRESSED

The policy seeks to address the following issues:

- Rural Electrification
- Generation
- Transmission
- Distribution
- Recovery of Cost of services & Targetted Subsidies.
- Technology Development and Research and Development (R&D)
- Competition aimed at Consumer Benefits

- Financing Power Sector Programmes Including Private Sector Participation.
- Energy Conservation
- Environmental Issues
- Training and Human Resource Development
- Cogeneration and Non-Conventional Energy Sources
- Protection of Consumer interests and Quality Standards

5.1 RURAL ELECTRIFICATION

5.1.1 The key development objective of the power sector is supply of electricity to all areas including rural areas as mandated in section 6 of the Electricity Act. Both the central government and state governments would jointly endeavor to achieve this objective at the earliest. Consumers, particularly those who are ready to pay a tariff, which reflects efficient costs have the right to get uninterrupted twenty four hours, supply of quality power. About **56%** of rural households have not yet been electrified even though many of these households are willing to pay for electricity. Determined efforts should be made to ensure that the task of rural electrification for securing electricity access to all households and also ensuring that electricity reaches poor and marginal sections of the society at reasonable rates is completed within the next five years.

5.1.2 Reliable rural electrification system will aim at creating the following:

- (a) Rural Electrification Distribution Backbone (REDB) with at least one 33/11 kv (or 66/11 kv) substation in every Block and more if required as per load, networked and connected appropriately to the state transmission system
- (b) Emanating from REDB would be supply feeders and one distribution transformer at least in every village settlement.
- (c) Household Electrification from distribution transformer to connect every household on demand.
- (d) Wherever above is not feasible (it is neither cost effective nor the optimal solution to provide grid connectivity) decentralized distributed generation facilities together with local distribution network would be provided so that every household gets access to electricity. This would be done either through conventional or non-conventional methods of electricity generation whichever is more suitable and economical. Non-conventional sources of energy could be utilized even where grid connectivity exists provided it is found to be cost effective.
- (e) Development of infrastructure would also cater for requirement of agriculture & other economic activities including irrigation pump sets, small and medium industries, khadi and village industries, cold chain and social services like health and education.

5.1.3 Particular attention would be given in household electrification to dalit bastis, tribal areas and other weaker sections.

5.1.4 Rural Electrification Corporation of India, a Government of India enterprise will be the nodal agency at Central Government level to implement the programme for achieving the goal set by National Common Minimum Programme of giving access to electricity to all the households in next five years. Its role is being suitably enlarged to ensure timely implementation of rural electrification projects.

5.1.5 Targetted expansion in access to electricity for rural households in the desired timeframe can be achieved if the distribution licensees recover at least the cost of electricity and related O&M expenses from consumers, except for lifeline support to households below the poverty line who would need to be adequately subsidized. Subsidies should be properly targeted at the intended beneficiaries in the most efficient manner. Government recognizes the need for providing necessary capital subsidy and soft long-term debt finances for investment in rural electrification as this would reduce the cost of supply in rural areas. Adequate funds would need to be made available for the same through the Plan process. Also commensurate organizational support would need to be created for timely implementation. The Central Government would assist the State Governments in achieving this.

5.1.6 Necessary institutional framework would need to be put in place not only to ensure creation of rural electrification infrastructure but also to operate and maintain supply system for securing reliable power supply to consumers. Responsibility of operation & maintenance and cost recovery could be discharged by utilities through appropriate arrangements with Panchayats, local authorities, NGOs and other franchisees etc.

5.1.7 The gigantic task of rural electrification requires appropriate cooperation among various agencies of the State Governments, Central Government and participation of the community. Education and awareness programmes would be essential for creating demand for electricity and for achieving the objective of effective community participation.

5.2 GENERATION

5.2.1 Inadequacy of generation has characterized power sector operation in India. To provide availability of over 1000 units of per capita electricity by year 2012 it had been estimated that need based capacity addition of more than 1,00,000 MW would be required during the period 2002-12.

5.2.2 The Government of India has initiated several reform measures to create a favorable environment for addition of new generating capacity in the country. The Electricity Act 2003 has put in place a highly liberal framework for generation. There is no requirement of licensing for generation. The requirement of techno-economic clearance of CEA for thermal generation project is no longer there. For hydroelectric generation also, the limit of capital expenditure, above which concurrence of CEA is required, would be raised suitably from the present level. Captive generation has been freed from all controls.

5.2.3 In order to fully meet both energy and peak demand by 2012, there is a need to create adequate reserve capacity margin. In addition to enhancing the overall availability of installed capacity to **85%**, a spinning reserve of at least **5%**, at national level, would need to be created to ensure grid security and quality and reliability of power supply.

5.2.4 The progress of implementation of capacity addition plans and growth of demand would need to be constantly monitored and necessary adjustments made from time to time. In creating new generation capacities, appropriate technology may be considered keeping in view the likely widening of the difference between peak demand and the base load.

Hydro Generation

5.2.5 Hydroelectricity is a clean and renewable source of energy. Maximum emphasis would be laid on the full development of the feasible hydro potential in the country. The 50,000 MW hydro initiative has been already launched and is being vigorously pursued with DPRs for projects of 33,000 MW capacity already under preparation.

5.2.6 Harnessing hydro potential speedily will also facilitate economic development of States, particularly North-Eastern States, Sikkim, Uttaranchal, Himachal Pradesh and J&K, since a large proportion of our hydro power potential is located in these States. The States with hydro potential need to focus on the full development of these potentials at the earliest.

5.2.7 Hydel projects call for comparatively larger capital investment. Therefore, debt financing of longer tenure would need to be made available for hydro projects. Central Government is committed to policies that ensure financing of viable hydro projects.

5.2.8 State Governments need to review procedures for land acquisition, and other approvals/clearances for speedy implementation of hydroelectric projects.

5.2.9 The Central Government will support the State Governments for expeditious development of their hydroelectric projects by offering services of Central Public Sector Undertakings like National Hydroelectric Power Corporation (NHPC).

5.2.10 Proper implementation of National Policy on Rehabilitation and Resettlement (R&R) would be essential in this regard so as to ensure that the concerns of project-affected families are addressed adequately.

5.2.11 Adequate safeguards for environmental protection with suitable mechanism for monitoring of implementation of Environmental Action Plan and R&R Schemes will be put in place.

Thermal Generation

5.2.12 Even with full development of the feasible hydro potential in the country, coal would necessarily continue to remain the primary fuel for meeting future electricity demand.

5.2.13 Imported coal based thermal power stations, particularly at coastal locations, would be encouraged based on their economic viability. Use of low ash content coal would also help in reducing the problem of fly ash emissions.

5.2.14 Significant Lignite resources in the country are located in Tamil Nadu, Gujarat and Rajasthan and these should be increasingly utilized for power generation. Lignite mining technology needs to be improved to reduce costs.

5.2.15 Use of gas as a fuel for power generation would depend upon its availability at reasonable prices. Natural gas is being used in Gas Turbine /Combined Cycle Gas Turbine (GT/CCGT) stations, which currently accounts for about **10 %** of total capacity. Power sector consumes about **40%** of the total gas in the country. New power generation capacity could come up based on indigenous gas findings, which can emerge as a major source of power generation if prices are reasonable. A national gas grid covering various parts of the country could facilitate development of such capacities.

5.2.16 Imported LNG based power plants are also a potential source of electricity and the pace of their development would depend on their commercial viability. The existing power plants using liquid fuels should shift to use of Natural Gas/LNG at the earliest to reduce the cost of generation.

5.2.17 For thermal power, economics of generation and supply of electricity should be the basis for choice of fuel from among the options available. It would be economical for new generating stations to be located either near the fuel sources e.g. pithead locations or load centres.

5.2.18 Generating companies may enter into medium to long-term fuel supply agreements specially with respect to imported fuels for commercial viability and security of supply.

Nuclear Power

5.2.19 Nuclear power is an established source of energy to meet base load demand. Nuclear power plants are being set up at locations away from coalmines. Share of nuclear power in the overall capacity profile will need to be increased significantly. Economics of generation and resultant tariff will be, among others, important considerations. Public sector investments to create nuclear generation capacity will need to be stepped up. Private sector partnership would also be facilitated to see that not only targets are achieved but exceeded.

Non-conventional Energy Sources

5.2.20 Feasible potential of non-conventional energy resources, mainly small hydro, wind and bio-mass would also need to be exploited fully to create additional power generation capacity. With a view to increase the overall share of non-conventional energy sources in the electricity mix, efforts will be made to encourage private sector participation through suitable promotional measures.

Renovation and Modernization (R&M)

5.2.21 One of the major achievements of the power sector has been a significant increase in availability and plant load factor of thermal power stations specially over the last few years. Renovation and modernization for achieving higher efficiency levels needs to be pursued vigorously and all existing generation capacity should be brought to minimum acceptable standards. The Govt. of India is providing financial support for this purpose.

5.2.22 For projects performing below acceptable standards, R&M should be undertaken as per well-defined plans featuring necessary cost-benefit analysis. If economic operation does not appear feasible through R&M, then there may be no alternative to closure of such plants as the last resort.

5.2.23 In cases of plants with poor O&M record and persisting operational problems, alternative strategies including change of management may need to be considered so as to improve the efficiency to acceptable levels of these power stations.

Captive Generation

5.2.24 The liberal provision in the Electricity Act, 2003 with respect to setting up of captive power plant has been made with a view to not only securing reliable, quality and cost effective power but also to facilitate creation of employment opportunities through speedy and efficient growth of industry.

5.2.25 The provision relating to captive power plants to be set up by group of consumers is primarily aimed at enabling small and medium industries or other consumers that may not individually be in a position to set up plant of optimal size in a cost effective manner. It needs to be noted that efficient expansion of small and medium industries across the country would lead to creation of enormous employment opportunities.

5.2.26 A large number of captive and standby generating stations in India have surplus capacity that could be supplied to the grid continuously or during certain time periods. These plants offer a sizeable and potentially competitive capacity that could be harnessed for meeting demand for power. Under the Act, captive generators have access to licensees and would get access to consumers who are allowed open access. Grid inter-connections for captive generators shall be facilitated as per section 30 of the Act. This should be done on

priority basis to enable captive generation to become available as distributed generation along the grid. Towards this end, non-conventional energy sources including co-generation could also play a role. Appropriate commercial arrangements would need to be instituted between licensees and the captive generators for harnessing of spare capacity energy from captive power plants. The appropriate Regulatory Commission shall exercise regulatory oversight on such commercial arrangements between captive generators and licensees and determine tariffs when a licensee is the off-taker of power from captive plant.

5.3 TRANSMISSION

5.3.1 The Transmission System requires adequate and timely investments and also efficient and coordinated action to develop a robust and integrated power system for the country.

5.3.2 Keeping in view the massive increase planned in generation and also for development of power market, there is need for adequately augmenting transmission capacity. While planning new generation capacities, requirement of associated transmission capacity would need to be worked out simultaneously in order to avoid mismatch between generation capacity and transmission facilities. The policy emphasizes the following to meet the above objective:

- The Central Government would facilitate the continued development of the National Grid for providing adequate infrastructure for inter-state transmission of power and to ensure that underutilized generation capacity is facilitated to generate electricity for its transmission from surplus regions to deficit regions.
- The Central Transmission Utility (CTU) and State Transmission Utility (STU) have the key responsibility of network planning and development based on the National Electricity Plan in coordination with all concerned agencies as provided in the Act. The CTU is responsible for the national and regional transmission system planning and development. The STU is responsible for planning and development of the intra-state transmission system. The CTU would need to coordinate with the STUs for achievement of the shared objective of eliminating transmission constraints in cost effective manner.
- Network expansion should be planned and implemented keeping in view the anticipated transmission needs that would be incident on the system in the open access regime. Prior agreement with the beneficiaries would not be a pre-condition for network expansion. CTU/STU should undertake network expansion after identifying the requirements in consultation with stakeholders and taking up the execution after due regulatory approvals.
- Structured information dissemination and disclosure procedures should be developed by the CTU and STUs to ensure that all stakeholders are aware of the status of generation and transmission projects and plans. These should form a part of the overall planning procedures.
- The State Regulatory Commissions who have not yet notified the grid code under the Electricity Act 2003 should notify the same not later than September 2005.

5.3.3 Open access in transmission has been introduced to promote competition amongst the generating companies who can now sell to different distribution licensees across the country. This should lead to availability of cheaper power. The Act mandates non-discriminatory open access in transmission from the very beginning. When open access to distribution networks is introduced by the respective State Commissions for enabling bulk consumers to buy directly

from competing generators, competition in the market would increase the availability of cheaper and reliable power supply. The Regulatory Commissions need to provide facilitative framework for non-discriminatory open access. This requires load dispatch facilities with state-of-the art communication and data acquisition capability on a real time basis. While this is the case currently at the regional load dispatch centers, appropriate State Commissions must ensure that matching facilities with technology upgrades are provided at the State level, where necessary and realized not later than June 2006.

5.3.4 The Act prohibits the State transmission utilities/transmission licensees from engaging in trading in electricity. Power purchase agreements (PPAs) with the generating companies would need to be suitably assigned to the Distribution Companies, subject to mutual agreement. To the extent necessary, such assignments can be done in a manner to take care of different load profiles of the Distribution Companies. Non-discriminatory open access shall be provided to competing generators supplying power to licensees upon payment of transmission charge to be determined by the appropriate Commission. The appropriate Commissions shall establish such transmission charges no later than June 2005.

5.3.5 To facilitate orderly growth and development of the power sector and also for secure and reliable operation of the grid, adequate margins in transmission system should be created. The transmission capacity would be planned and built to cater to both the redundancy levels and margins keeping in view international standards and practices. A well planned and strong transmission system will ensure not only optimal utilization of transmission capacities but also of generation facilities and would facilitate achieving ultimate objective of cost effective delivery of power. To facilitate cost effective transmission of power across the region, a national transmission tariff framework needs to be implemented by CERC. The tariff mechanism would be sensitive to distance, direction and related to quantum of flow. As far as possible, consistency needs to be maintained in transmission pricing framework in inter-State and intra-State systems. Further it should be ensured that the present network deficiencies do not result in unreasonable transmission loss compensation requirements.

5.3.6 The necessary regulatory framework for providing non-discriminatory open access in transmission as mandated in the Electricity Act 2003 is essential for signaling efficient choice in locating generation capacity and for encouraging trading in electricity for optimum utilization of generation resources and consequently for reducing the cost of supply.

5.3.7 The spirit of the provisions of the Act is to ensure independent system operation through NLDC, RLDCs and SLDCs. These dispatch centers, as per the provisions of the Act, are to be operated by a Government company or authority as notified by the appropriate Government. However, till such time these agencies/authorities are established the Act mandates that the CTU or STU, as the case may be, shall operate the RLDCs or SLDC. The arrangement of CTU operating the RLDCs would be reviewed by the Central Government based on experience of working with the existing arrangement. A view on this aspect would be taken by the Central Government by December 2005.

5.3.8 The Regional Power Committees as envisaged in section 2(55) would be constituted by the Government of India within two months with representation from various stakeholders.

5.3.9 The National Load Despatch Centre (NLDC) along with its constitution and functions as envisaged in Section 26 of the Electricity Act 2003 would be notified within three months. RLDCs and NLDC will have complete responsibility and commensurate authority for smooth operation of the grid irrespective of the ownership of the transmission system, be it under CPSUs, State Utility or private sector.

5.3.10 Special mechanisms would be created to encourage private investment in transmission sector so that sufficient investments are made for achieving the objective of demand to be fully met by 2012.

5.4 DISTRIBUTION

5.4.1 Distribution is the most critical segment of the electricity business chain. The real challenge of reforms in the power sector lies in efficient management of the distribution sector.

5.4.2 The Act provides for a robust regulatory framework for distribution licensees to safeguard consumer interests. It also creates a competitive framework for the distribution business, offering options to consumers, through the concepts of open access and multiple licensees in the same area of supply.

5.4.3 For achieving efficiency gains proper restructuring of distribution utilities is essential. Adequate transition financing support would also be necessary for these utilities. Such support should be arranged linked to attainment of predetermined efficiency improvements and reduction in cash losses and putting in place appropriate governance structure for insulating the service providers from extraneous interference while at the same time ensuring transparency and accountability. For ensuring financial viability and sustainability, State Governments would need to restructure the liabilities of the State Electricity Boards to ensure that the successor companies are not burdened with past liabilities. The Central Government would also assist the States, which develop a clear roadmap for turnaround, in arranging transition financing from various sources which shall be linked to predetermined improvements and efficiency gains aimed at attaining financial viability and also putting in place appropriate governance structures.

5.4.4 Conducive business environment in terms of adequate returns and suitable transitional model with predetermined improvements in efficiency parameters in distribution business would be necessary for facilitating funding and attracting investments in distribution. Multi-Year Tariff (MYT) framework is an important structural incentive to minimize risks for utilities and consumers, promote efficiency and rapid reduction of system losses. It would serve public interest through economic efficiency and improved service quality. It would also bring greater predictability to consumer tariffs by restricting tariff adjustments to known indicators such as power purchase prices and inflation indices. Private sector participation in distribution needs to be encouraged for achieving the requisite reduction in transmission and distribution losses and improving the quality of service to the consumers.

5.4.5 The Electricity Act 2003 enables competing generating companies and trading licensees, besides the area distribution licensees, to sell electricity to consumers when open access in distribution is introduced by the State Electricity Regulatory Commissions. As required by the Act, the SERCs shall notify regulations by June 2005 that would enable open access to distribution networks in terms of sub-section 2 of section 42 which stipulates that such open access would be allowed, not later than five years from 27th January 2004 to consumers who require a supply of electricity where the maximum power to be made available at any time exceeds one mega watt. Section 49 of the Act provides that such consumers who have been allowed open access under section 42 may enter into agreement with any person for supply of electricity on such terms and conditions, including tariff, as may be agreed upon by them. While making regulations for open access in distribution, the SERCs will also determine wheeling charges and cross-subsidy surcharge as required under section 42 of the Act.

5.4.6 A time-bound programme should be drawn up by the State Electricity Regulatory Commissions (SERC) for segregation of technical and commercial losses through energy audits. Energy accounting and declaration of its results in each defined unit, as determined by SERCs, should be mandatory not later than March 2007. An action plan for reduction of the losses with adequate investments and suitable improvements in governance should be drawn up. Standards for reliability and quality of supply as well as for loss levels shall also be specified, from time to time, so as to bring these in line with international practices by year 2012.

5.4.7 One of the key provisions of the Act on competition in distribution is the concept of multiple licensees in the same area of supply through their independent distribution systems. State Governments have full flexibility in carving out distribution zones while restructuring the Government utilities. For grant of second and subsequent distribution license within the area of an incumbent distribution licensee, a revenue district, a Municipal Council for a smaller urban area or a Municipal Corporation for a larger urban area as defined in the Article 243(Q) of Constitution of India (74th Amendment) may be considered as the minimum area. The Government of India would notify within three months, the requirements for compliance by applicant for second and subsequent distribution license as envisaged in Section 14 of the Act. With a view to provide benefits of competition to all section of consumers, the second and subsequent licensee for distribution in the same area shall have obligation to supply to all consumers in accordance with provisions of section 43 of the Electricity Act 2003. The SERCs are required to regulate the tariff including connection charges to be recovered by a distribution licensee under the provisions of the Act. This will ensure that second distribution licensee does not resort to cherry picking by demanding unreasonable connection charges from consumers.

5.4.8 The Act mandates supply of electricity through a correct meter within a stipulated period. The Authority should develop regulations as required under Section 55 of the Act within three months.

5.4.9 The Act requires all consumers to be metered within two years. The SERCs may obtain from the Distribution Licensees their metering plans, approve these, and monitor the same. The SERCs should encourage use of pre-paid meters. In the first instance, TOD meters for large consumers with a minimum load of one MVA are also to be encouraged. The SERCs should also put in place independent third-party meter testing arrangements.

5.4.10 Modern information technology systems may be implemented by the utilities on a priority basis, after considering cost and benefits, to facilitate creation of network information and customer data base which will help in management of load, improvement in quality, detection of theft and tampering, customer information and prompt and correct billing and collection. Special emphasis should be placed on consumer indexing and mapping in a time bound manner. Support is being provided for information technology based systems under the Accelerated Power Development and Reforms Programme (APDRP).

5.4.11 High Voltage Distribution System is an effective method for reduction of technical losses, prevention of theft, improved voltage profile and better consumer service. It should be promoted to reduce LT/HT ratio keeping in view the techno economic considerations.

5.4.12 SCADA and data management systems are useful for efficient working of Distribution Systems. A time bound programme for implementation of SCADA and data management system should be obtained from Distribution Licensees and approved by the SERCs keeping in view the techno economic considerations. Efforts should be made to install substation automation equipment in a phased manner.

5.4.13 The Act has provided for stringent measures against theft of electricity. The States and distribution utilities should ensure effective implementation of these provisions. The State Governments may set up Special Courts as envisaged in Section 153 of the Act.

5.5 RECOVERY OF COST OF SERVICES & TARGETTED SUBSIDIES

5.5.1 There is an urgent need for ensuring recovery of cost of service from consumers to make the power sector sustainable.

5.5.2 A minimum level of support may be required to make the electricity affordable for consumers of very poor category. Consumers below poverty line who consume below a specified level, say 30 units per month, may receive special support in terms of tariff, which are cross-subsidized. Tariffs for such designated group of consumers will be at least **50 %** of the average (overall) cost of supply. This provision will be further re-examined after five years.

5.5.3 Over the last few decades cross-subsidies have increased to unsustainable levels. Cross-subsidies hide inefficiencies and losses in operations. There is urgent need to correct this imbalance without giving tariff shock to consumers. The existing cross-subsidies for other categories of consumers would need to be reduced progressively and gradually.

5.5.4 The State Governments may give advance subsidy to the extent they consider appropriate in terms of section 65 of the Act in which case necessary budget provision would be required to be made in advance so that the utility does not suffer financial problems that may affect its operations. Efforts would be made to ensure that the subsidies reach the targeted beneficiaries in the most transparent and efficient way.

5.6 TECHNOLOGY DEVELOPMENT AND R&D

5.6.1 Effective utilization of all available resources for generation, transmission and distribution of electricity using efficient and cost effective technologies is of paramount importance. Operations and management of vast and complex power systems require coordination among the multiple agencies involved. Effective control of power system at state, regional and national level can be achieved only through use of Information Technology. Application of IT has great potential in reducing technical & commercial losses in distribution and providing consumer friendly services. Integrated resource planning and demand side management would also require adopting state of the art technologies.

Special efforts would be made for research, development demonstration and commercialization of non-conventional energy systems. Such systems would need to meet international standards, specifications and performance parameters.

5.6.2 Efficient technologies, like super critical technology, IGCC etc and large size units would be gradually introduced for generation of electricity as their cost effectiveness is established. Simultaneously, development and deployment of technologies for productive use of fly ash would be given priority and encouragement.

5.6.3 Similarly, cost effective technologies would require to be developed for high voltage power flows over long distances with minimum possible losses. Specific information technology tools need to be developed for meeting the requirements of the electricity industry including highly sophisticated control systems for complex generation and transmission operations, efficient distribution business and user friendly consumer interface.

5.6.4 The country has a strong research and development base in the electricity sector, which would be further augmented. R&D activities would be further intensified and Missions will

be constituted for achieving desired results in identified priority areas. A suitable funding mechanism would be evolved for promoting R& D in the Power Sector. Large power companies should set aside a portion of their profits for support to R&D.

5.7 COMPETITION AIMED AT CONSUMER BENEFITS

5.7.1 To promote market development, a part of new generating capacities, say **15%** may be sold outside long-term PPAs . As the power markets develop, it would be feasible to finance projects with competitive generation costs outside the long-term power purchase agreement framework. In the coming years, a significant portion of the installed capacity of new generating stations could participate in competitive power markets. This will increase the depth of the power markets and provide alternatives for both generators and licensees/consumers and in long run would lead to reduction in tariff.

For achieving this, the policy underscores the following:-

- a. It is the function of the Central Electricity Regulatory Commission to issue license for inter-state trading which would include authorization for trading throughout the country.
- b. The ABT regime introduced by CERC at the national level has had a positive impact. It has also enabled a credible settlement mechanism for intra-day power transfers from licenses with surpluses to licenses experiencing deficits. SERCs are advised to introduce the ABT regime at the State level within one year.
- c. Captive generating plants should be permitted to sell electricity to licensees and consumers when they are allowed open access by SERCs under section 42 of the Act .
- d. Development of power market would need to be undertaken by the Appropriate Commission in consultation with all concerned.
- e. The Central Commission and the State Commissions are empowered to make regulations under section 178 and section 181 of the Act respectively. These regulations will ensure implementation of various provisions of the Act regarding encouragement to competition and also consumer protection. The Regulatory Commissions are advised to notify various regulations expeditiously.
- f. Enabling regulations for inter and intra State trading and also regulations on power exchange shall be notified by the appropriate Commissions within six months.

5.8 FINANCING POWER SECTOR PROGRAMMES INCLUDING PRIVATE SECTOR PARTICIPATION

5.8.1 To meet the objective of rapid economic growth and “power for all” including household electrification, it is estimated that an investment of the order of Rs.9,00,000 crores at 2002-03 price level would be required to finance generation, transmission, sub-transmission, distribution and rural electrification projects. Power being most crucial infrastructure, public sector investments, both at the Central Government and State Governments, will have to be stepped up. Considering the magnitude of the expansion of the sector required, a sizeable part of the investments will also need to be brought in from the private sector. The Act creates a conducive environment for investments in all segments of the industry, both for public sector and private sector, by removing barrier to entry in different segments. Section 63 of the Act provides for participation of suppliers on competitive basis in different segments, which will further encourage private sector investment. Public service obligations like increasing access to electricity to rural households and small and marginal farmers have highest priority over public finances.

5.8.2 The public sector should be able to raise internal resources so as to at least meet the equity requirement of investments even after suitable gross budgetary support from the Government at the Centre and in the states in order to complete their on-going projects in a time-bound manner. Expansion of public sector investments would be dependent on the financial viability of the proposed projects. It would, therefore, be imperative that an appropriate surplus is generated through return on investments and, at the same time, depreciation reserve created so as to fully meet the debt service obligation. This will not only enable financial closure but also bankability of the project would be improved for expansion programmes, with the Central and State level public sector organizations, as also private sector projects, being in a position to fulfill their obligations toward equity funding and debt repayments.

5.8.3 Under sub-section (2) of Section 42 of the Act, a surcharge is to be levied by the respective State Commissions on consumers switching to alternate supplies under open access. This is to compensate the host distribution licensee serving such consumers who are permitted open access under section 42(2), for loss of the cross-subsidy element built into the tariff of such consumers. An additional surcharge may also be levied under sub-section (4) of Section 42 for meeting the fixed cost of the distribution licensee arising out of his obligation to supply in cases where consumers are allowed open access. The amount of surcharge and additional surcharge levied from consumers who are permitted open access should not become so onerous that it eliminates competition that is intended to be fostered in generation and supply of power directly to consumers through the provision of Open Access under Section 42(2) of the Act. Further it is essential that the Surcharge be reduced progressively in step with the reduction of cross-subsidies as foreseen in Section 42(2) of the Electricity Act 2003.

5.8.4 Capital is scarce. Private sector will have multiple options for investments. Return on investment will, therefore, need to be provided in a manner that the sector is able to attract adequate investments at par with, if not in preference to, investment opportunities in other sectors. This would obviously be based on a clear understanding and evaluation of opportunities and risks. An appropriate balance will have to be maintained between the interests of consumers and the need for investments.

5.8.5 All efforts will have to be made to improve the efficiency of operations in all the segments of the industry. Suitable performance norms of operations together with incentives and disincentives will need to be evolved along with appropriate arrangement for sharing the gains of efficient operations with the consumers. This will ensure protection of consumers' interests on the one hand and provide motivation for improving the efficiency of operations on the other.

5.8.6 Competition will bring significant benefits to consumers, in which case, it is competition, which will determine the price rather than any cost plus exercise on the basis of operating norms and parameters. All efforts will need to be made to bring the power industry to this situation as early as possible, in the overall interest of consumers. Detailed guidelines for competitive bidding as stipulated in section 63 of the Act have been issued by the Central Government.

5.8.7 It will be necessary that all the generating companies, transmission licensees and distribution licensees receive due payments for effective discharge of their operational obligations as also for enabling them to make fresh investments needed for the expansion programmes. Financial viability of operations and businesses would, therefore, be essential for growth and development of the sector. Concerted efforts would be required for restoring

the financial health of the sector. For this purpose, tariff rationalization would need to be ensured by the SERCs. This would also include differential pricing for base, intermediate and peak power.

5.8.8 Steps would also be taken to address the need for regulatory certainty based on independence of the regulatory commissions and transparency in their functioning to generate investor's confidence.

5.8.9 Role of private participation in generation, transmission and distribution would become increasingly critical in view of the rapidly growing investment needs of the sector. The Central Government and the State Governments need to develop workable and successful models for public private partnership. This would also enable leveraging private investment with the public sector finances. Mechanisms for continuous dialogue with industry for streamlining procedures for encouraging private participation in power sector need to be put in place.

Transmission & Distribution Losses

5.8.10 It would have to be clearly recognized that Power Sector will remain unviable until T&D losses are brought down significantly and rapidly. A large number of States have been reporting losses of over **40%** in the recent years. By any standards, these are unsustainable and imply a steady decline of power sector operations. Continuation of the present level of losses would not only pose a threat to the power sector operations but also jeopardize the growth prospects of the economy as a whole. No reforms can succeed in the midst of such large pilferages on a continuing basis.

The State Governments would prepare a Five Year Plan with annual milestones to bring down these losses expeditiously. Community participation, effective enforcement, incentives for entities, staff and consumers, and technological upgradation should form part of campaign efforts for reducing these losses. The Central Government will provide incentive based assistance to States that are able to reduce losses as per agreed programmes.

5.9 ENERGY CONSERVATION

5.9.1 There is a significant potential of energy savings through energy efficiency and demand side management measures. In order to minimize the overall requirement, energy conservation and demand side management (DSM) is being accorded high priority. The Energy Conservation Act has been enacted and the Bureau of Energy Efficiency has been setup.

5.9.2 The potential number of installations where demand side management and energy conservation measures are to be carried out is very large. Bureau of Energy Efficiency (BEE) shall initiate action in this regard. BEE would also make available the estimated conservation and DSM potential, its staged implementation along with cost estimates for consideration in the planning process for National Electricity Plan.

5.9.3 Periodic energy audits have been made compulsory for power intensive industries under the Energy Conservation Act. Other industries may also be encouraged to adopt energy audits and energy conservation measures. Energy conservation measures shall be adopted in all Government buildings for which saving potential has been estimated to be about **30%** energy. Solar water heating systems and solar passive architecture can contribute significantly to this effort.

5.9.4 In the field of energy conservation initial approach would be voluntary and self-regulating with emphasis on labeling of appliances. Gradually as awareness increases, a more regulatory approach of setting standards would be followed.

5.9.5 In the agriculture sector, the pump sets and the water delivery system engineered for high efficiency would be promoted. In the industrial sector, energy efficient technologies should be used and energy audits carried out to indicate scope for energy conservation measures. Motors and drive system are the major source of high consumption in Agricultural and Industrial Sector. These need to be addressed. Energy efficient lighting technologies should also be adopted in industries, commercial and domestic establishments.

5.9.6 In order to reduce the requirements for capacity additions, the difference between electrical power demand during peak periods and off-peak periods would have to be reduced. Suitable load management techniques should be adopted for this purpose. Differential tariff structure for peak and off peak supply and metering arrangements (Time of Day metering) should be conducive to load management objectives. Regulatory Commissions should ensure adherence to energy efficiency standards by utilities.

5.9.7 For effective implementation of energy conservation measures, role of Energy Service Companies would be enlarged. Steps would be taken to encourage and incentivise emergence of such companies.

5.9.8 A national campaign for bringing about awareness about energy conservation would be essential to achieve efficient consumption of electricity.

5.9.9. A National Action Plan has been developed. Progress on all the proposed measures will be monitored with reference to the specific plans of action.

5.10 ENVIRONMENTAL ISSUES

5.10.1 Environmental concerns would be suitably addressed through appropriate advance action by way of comprehensive Environmental Impact Assessment and implementation of Environment Action Plan (EAP).

5.10.2 Steps would be taken for coordinating the efforts for streamlining the procedures in regard to grant of environmental clearances including setting up of 'Land Bank' and 'Forest Bank'.

5.10.3 Appropriate catchment area treatment for hydro projects would also be ensured and monitored.

5.10.4 Setting up of coal washeries will be encouraged. Suitable steps would also be taken so that utilization of fly ash is ensured as per environmental guidelines.

5.10.5 Setting up of municipal solid waste energy projects in urban areas and recovery of energy from industrial effluents will also be encouraged with a view to reducing environmental pollution apart from generating additional energy.

5.10.6 Full compliance with prescribed environmental norms and standards must be achieved in operations of all generating plants.

5.11 TRAINING AND HUMAN RESOURCE DEVELOPMENT

In the new reforms framework ushered by Electricity Act 2003, it is particularly important that the electricity industry has access to properly trained human resource. Therefore, concerted action would be taken for augmenting training infrastructure so that adequate well-

trained human resource is made available as per the need of the industry. Special attention would need to be paid by the industry for establishing training infrastructure in the field of electricity distribution, regulation, trading and power markets. Efforts should be made so that personnel of electricity supply industry both in the private and public sector become more cost-conscious and consumer-friendly.

5.12 COGENERATION AND NON-CONVENTIONAL ENERGY SOURCES

5.12.1 Non-conventional sources of energy being the most environment friendly there is an urgent need to promote generation of electricity based on such sources of energy. For this purpose, efforts need to be made to reduce the capital cost of projects based on non-conventional and renewable sources of energy. Cost of energy can also be reduced by promoting competition within such projects. At the same time, adequate promotional measures would also have to be taken for development of technologies and a sustained growth of these sources.

5.12.2 The Electricity Act 2003 provides that co-generation and generation of electricity from non-conventional sources would be promoted by the SERCs by providing suitable measures for connectivity with grid and sale of electricity to any person and also by specifying, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. Such percentage for purchase of power from non-conventional sources should be made applicable for the tariffs to be determined by the SERCs at the earliest. Progressively the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions. Such purchase by distribution companies shall be through competitive bidding process. Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional sources, the Commission may determine an appropriate differential in prices to promote these technologies.

5.12.3 Industries in which both process heat and electricity are needed are well suited for cogeneration of electricity. A significant potential for cogeneration exists in the country, particularly in the sugar industry. SERCs may promote arrangements between the co-generator and the concerned distribution licensee for purchase of surplus power from such plants. Cogeneration system also needs to be encouraged in the overall interest of energy efficiency and also grid stability.

5.13 PROTECTION OF CONSUMER INTERESTS AND QUALITY STANDARDS

5.13.1 Appropriate Commission should regulate utilities based on pre-determined indices on quality of power supply. Parameters should include, amongst others, frequency and duration of interruption, voltage parameters, harmonics, transformer failure rates, waiting time for restoration of supply, percentage defective meters and waiting list of new connections. The Appropriate Commissions would specify expected standards of performance.

5.13.2 Reliability Index (RI) of supply of power to consumers should be indicated by the distribution licensee. A road map for declaration of RI for all cities and towns up to the District Headquarter towns as also for rural areas, should be drawn by up SERCs. The data of RI should be compiled and published by CEA.

5.13.3 It is advised that all State Commissions should formulate the guidelines regarding setting up of grievance redressal forum by the licensees as also the regulations regarding the Ombudsman and also appoint/designate the Ombudsman within six months.

5.13.4 The Central Government, the State Governments and Electricity Regulatory Commissions should facilitate capacity building of consumer groups and their effective representation before the Regulatory Commissions. This will enhance the efficacy of regulatory process.

6.0 COORDINATED DEVELOPMENT

6.1 Electricity being a concurrent subject, a well-coordinated approach would be necessary for development of the power sector. This is essential for the attainment of the objective of providing electricity-access to all households in next five years and providing reliable uninterrupted quality power supply to all consumers. The State Governments have a major role, particularly in creation of generation capacity, state level transmission and distribution. The Central Government would assist the States in the attainment of this objective. It would be playing a supportive role in fresh capacity addition and a major role in development of the National Grid. The State Governments need to ensure the success of reforms and restoration of financial health in distribution, which alone can enable the creation of requisite generation capacity. The Regulatory Commissions have the responsibility of ensuring that the regulatory processes facilitate the attainment of this objective. They also have a developmental role whose fulfillment would need a less formal and a consultative process.

The Electricity Act, 2003 also provides for mechanisms like “Coordination forum” and “Advisory Committees” to facilitate consultative process. The Act also requires the Regulatory Commissions to ensure transparency in exercise of their powers and in discharge of their functions. This in no way means that the Regulatory Commissions should follow formal judicial approach. In fact, quick disposal of matters would require an approach involving consultations with stakeholders.

6.2 Under the Act, the Regulatory Commissions are required to perform wide-ranging responsibilities. The appropriate Governments need to take steps to attract regulatory personnel with required background. The Govt. of India would promote the institutional capability to provide training to raise regulatory capacity in terms of the required expertise and skill sets. The appropriate Governments should provide financial autonomy to the Regulatory Commissions. The Act provides that the appropriate Government shall constitute a Fund under section 99 or section 103 of the Act, as the case may be, to be called as Regulatory Commission Fund. The State Governments are advised to establish this Fund expeditiously.

(Ajay Shankar)

Additional Secretary to the Government of India

U. S Agency for International Development

1300 Pennsylvania Avenue, NW

Washington, DC 20523

Tel: (202) 712-0000

Fax: (202) 216-3524

www.usaid.gov